APPARATUS TO SIMULATE MR PROPER-TIES OF HUMAN BRAIN FOR MR APPLI-CATIONS EVALUATION

Abstract

A system and method for mimicking a human brain for MR imaging at various magnetic field strengths is disclosed. A phantom is constructed of a structure having a number of sections. A first section contains a mixture of nickel chloride, agarose gel powder, potassium sorbate, deuterium oxide, and water such that the T1, T2, and proton density values of the first section mimic white matter of the human brain. A second section contains different amounts of the same components such that the T1, T2, and proton density values of the second section mimic gray matter of the human brain. As such, when the phantom is scanned in an MR imaging machine, an optimized flip angle for T1-weighted imaging to improve contrast between white matter and gray matter of the human brain that takes into account proton density differences therebetween can be determined.